US Army Corps
of Engineers
Alaska District

Public Notice of Application for Permit

Regulatory Branch (1145b)
Post Office Box 6898
Elmendorf AFB, Alaska 99506-6898

PUBLIC NOTICE DATE: 19 MAY 2004

EXPIRATION DATE: 4 JUNE 2004

REFERENCE NUMBER: POA-1984-0010-O

WATERWAY NUMBER: Kuparuk River

Interested parties are hereby notified that an application has been received for a Department of the Army permit for certain work in waters of the United States as described below and shown on the attached plan.

APPLICANT: BP Exploration (Alaska) Incorporated, Post Office Box 196612, Anchorage, Alaska 99519-6612.

LOCATION: At the Kuparuk Deadarm Gravel Mine site, section 6, Township 11 North, Range 13 East; and section 31, Township 12 North, Range 13 East; Latitude 70°20'36"N., Longitude 148°56'38"W.; Umiat Meridian, in the Prudhoe Bay Unit Oilfield, on the North Slope of Alaska.

WORK: The applicant requests a ten-year time extension of the permit for the placement of gravel and overburden fill into 214 acres of wet tundra to develop the gravel pit.

PURPOSE: The purpose of the proposed work time extension is to continue to provide gravel for construction and maintenance of oilfield facilities.

ADDITIONAL INFORMATION: A change has been made to the Mining and Rehabilitation plan for rehabilitation treatments and inclusion of performance standards (see page 7 and 8 of the plan). The time extension will be for ten years.

MITIGATION: As a result of early project planning, the applicant has proposed the following mitigation efforts to reduce impacts to the aquatic environment: the final mine site plan includes creation of shallow littoral zone and islands around the perimeter of the pit and the deep water pit will become fish overwintering habitat connected to the Kuparuk River.

WATER QUALITY CERTIFICATION: A permit for the described work will not be issued until a certification or waiver of certification as required under Section 401 of the Clean Water Act (Public Law 95-217), has been received from the Alaska Department of Environmental Conservation.

COASTAL ZONE MANAGEMENT ACT CERTIFICATION: Section 307(c)(3) of the Coastal Zone, Management Act of 1972, as amended by 16 U.S.C. 1456(c)(3), requires the applicant to certify that the described activity affecting land or water uses in the Coastal

Zone complies with the Alaska Coastal Management Program. A permit will not be issued until the Office of Project Management and Permitting, Department of Natural Resources has concurred with the applicant's certification.

PUBLIC HEARING: Any person may request, in writing, within the comment period specified in this notice, that a public hearing be held to consider this application. Requests for public hearings shall state, with particularity, reasons for holding a public hearing.

CULTURAL RESOURCES: The latest published version of the Alaska Heritage Resources Survey (AHRS) has been consulted for the presence or absence of historic properties, including those listed in or eligible for inclusion in the National Register of Historic Places. There are no listed or eligible properties in the vicinity of the worksite. Consultation of the AHRS constitutes the extent of cultural resource investigations by the District Engineer at this time, and he is otherwise unaware of the presence of such resources. This application is being coordinated with the State Historic Preservation Office (SHPO). Any comments SHPO may have concerning presently unknown archeological or historic data that may be lost or destroyed by work under the requested permit will be considered in our final assessment of the described work.

TRIBAL CONSULTATION: The Alaska District fully supports tribal self-governance and government-to-government relations between the Federal government and Federally recognized Tribes. This notice invites participation by agencies, Tribes, and members of the public in the Federal decision-making process. In addition, Tribes with protected rights or resources that could be significantly affected by a proposed Federal action (e.g., a permit decision) have the right to consult with the Alaska District on a government-to-government basis. Views of each Tribe regarding protected rights and resources will be accorded due consideration in this process. This Public Notice serves as notification to the Tribes within the area potentially affected by the proposed work and invites their participation in the Federal decision-making process regarding the protected Tribal right or resource. Consultation may be initiated by the affected Tribe upon written request to the District Engineer during the public comment period.

ENDANGERED SPECIES: The project area is within the known or historic range of the threatened spectacled eider. Preliminarily, the described activity will not affect threatened or endangered species, or their critical habitat designated as endangered or threatened, under the Endangered Species Act of 1973 (87 Stat. 844). This application is being coordinated with the U.S. Fish and Wildlife Service and the National Marine Fisheries Service. Any comments they may have concerning endangered or threatened wildlife or plants or their critical habitat will be considered in our final assessment of the described work.

ESSENTIAL FISH HABITAT: The proposed work is being evaluated for possible effects to Essential Fish Habitat (EFH) pursuant to the Magnuson Stevens Fishery Conservation and Management Act of 1996, 16 U.S.C. et seq and associated federal regulations found at 50 CFR 600 Subpart K. The Alaska District includes areas of EFH as Fishery Management Plans. We have reviewed the January 20, 1999, North Pacific Fishery Management Council's Environmental Assessment to locate EFH area as identified by the National Marine Fisheries Service.

We have determined that the described activity within the proposed area will not adversely affect EFH, including anadromous fish and federally managed fishery resources.

SPECIAL AREA DESIGNATION: None.

EVALUATION: The decision whether to issue a permit will be based on an evaluation of the probable impacts including cumulative impacts of the proposed activity and its intended use on the public interest. Evaluation of the probable impacts, which the proposed activity may have on the public interest, requires a careful weighing of all the factors that become relevant in each particular case. The benefits, which reasonably may be expected to accrue from the proposal, must be balanced against its reasonably foreseeable detriments. The decision whether to authorize a proposal, and if so, the conditions under which it will be allowed to occur, are therefore determined by the outcome of the general balancing process. That decision should reflect the national concern for both protection and utilization of important resources. All factors, which may be relevant to the proposal, must be considered including the cumulative effects thereof. Among those are conservation, economics, aesthetics, general environmental concerns, wetlands, cultural values, fish and wildlife values, flood hazards, floodplain values, land use, navigation, shore erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs, considerations of property ownership, and, in general, the needs and welfare of the people. For activities involving Section 404 discharges, a permit will be denied if the discharge that would be authorized by such permit would not comply with the Environmental Protection Agency's 404(b)(1) guidelines. Subject to the preceding sentence and any other applicable guidelines or criteria (see Sections 320.2 and 320.3), a permit will be granted unless the District Engineer determines that it would be contrary to the public interest.

The Corps of Engineers is soliciting comments from the public; Federal, State, and local agencies and officials; Indian Tribes; and other interested parties in order to consider and evaluate the impacts of this proposed activity. Any comments received will be considered by the Corps of Engineers to determine whether to issue, modify, condition or deny a permit for this proposal. To make this decision, comments are used to assess impacts on endangered species, historic properties, water quality, general environmental effects, and the other public interest factors listed above. Comments are used in the preparation of an Environmental Assessment and/or an Environmental Impact Statement pursuant to the National Environmental Policy Act. Comments are also used to determine the need for a public hearing and to determine the overall public interest of the proposed activity.

Comments on the described work, with the reference number, should reach this office no later than the expiration date of this Public Notice to become part of the record and be considered in the decision. Please contact Ms. Alicia M. Hill at (907) 753-2716, toll free from within Alaska at (800) 478-2712, or by email at Alicia.M.Hill@poa02.usace.army.mil if further information is desired concerning this notice.

AUTHORITY: This permit will be issued or denied under the following authorities:

(X) Discharge dredged or fill material into waters of the United States - Section 404 Clean Water Act (33 U.S.C. 1344). Therefore, our public interest review will consider the guidelines set forth under Section 404(b) of the Clean Water Act (40 CFR 230).

A plan, Notice of Application for Certification of Consistency with the Alaska Coastal Management Program, and Notice of Application for State Water Quality Certification are attached to this Public Notice.

District Engineer
U.S. Army, Corps of Engineers

Attachments

MINING AND REHABILITATION PLAN
KUPARUK DEADARM GRAVEL MINE
PRUDHOE BAY OILFIELD, ALASKA

as required by
Material Sale Contract ADL 416634
USACE Permit No. N-840010, Kuparuk River 52

Updated by **BP Exploration (Alaska) Inc. Environmental Studies Group**
and **Hoefler Consulting Group**
4 May 2004

INTRODUCTION

BP Exploration (Alaska) Inc. (BPXA) submits the following updated mining and rehabilitation plan for operation of the Kuparuk Deadarm Gravel Mine. The plan is substantially unchanged from that which was approved on March 8, 2002 under Material Sale Contract No. ADL 416634, and on May 17, 1994 under USACE Permit No. N-840010. The updated plan is part of BPXA's permit renewal request for a ten year period beginning in June 2004. The existing gravel mine configuration is presented in drawings that use current, more accurate mapping technology, and in revegetation plans that have been updated to reflect more recently recognized revegetation techniques.

This plan was originally developed to fulfill the requirements of the 1989 – 1994 General Material Sale Contract ADL 413724 between BPXA and the Alaska Department of Natural Resources (ADNR) Division of Land and Water Management (DLWM), now the Division of Mining, Land and Water (DMLW). Certain recommendations presented by the Alaska Department of Fish and Game (ADFG) to DLWM on March 30, 1989 were incorporated to the extent possible into the plan, which was subsequently presented to the ADFG in Fairbanks in December, 1989.

The mine site rehabilitation plan is based upon the following factors: (1) the desire of the ADFG to provide shallow littoral areas in addition to deeper water used by fish for over-wintering, (2) to maximize gravel recovery while addressing the habitat requirements in order to minimize the area disturbed, and (3) the need to conserve stockpiled overburden for potential revegetation projects and reservoir nutrient purposes. The plan states that, to the extent practicable,

irregular shorelines will be created along new cuts into expansion areas in order to avoid straight line contours where possible. The irregularly contoured, shallow/deep mining method, therefore, represents an attempt to optimize resource extraction and environmental benefits.

The mining plan, and therefore the rehabilitation plan as well, is based on a phased development approach in which distinct areas of the permitted mine site are developed only after the development and closure of a preceding area or phase. The ultimate area impacted by mining will be reduced if a lesser volume of gravel is required than is potentially extractable.

EXISTING CONDITION

The overall size and configuration of the gravel mine area remains unchanged from that which was previously approved in 1994. Current gravel mining operations in Area 1B, and proposed expansion into Areas II, III and IV, lie to the east of the main channel and within a deadarm of the Kuparuk River. The area floods for a brief period of time during the spring breakup in late May and early June, filling mined areas with water. The flooding is usually characterized by water backing up into the reservoir system due to ice jams further down river.

There are nine (9) areas of the deadarm that were mined previously for gravel. Fresh water reservoirs and fish habitat areas were created from each of these mine sections after completion of gravel removal operations. Numbers have been assigned to each reservoir, with Reservoir Number 9 (also called Phase IA) being the most recently closed-out and rehabilitated gravel mining operation within the Kuparuk Deadarm system.

Mining operations in the Reservoir No. 9 gravel pit began in the winter of 1988. That reservoir flooded during the subsequent spring 1989 breakup of the Kuparuk River. Water depths in Reservoir No. 9 range from a few feet up to 8 or 10 feet. Reservoir No. 5, immediately to the east of Reservoir No. 9, is the largest and deepest of the reservoirs, with an average depth of 38 feet and a maximum depth of 57 feet.

All of the reservoirs, with one exception, are interconnected and have communication with the Kuparuk River. Reservoirs No. 1, 2 and 3 are not connected with Reservoir No. 4, the closest of the remaining northerly reservoirs, although these three reservoirs are interconnected with each other.

The area immediately to the north and east of Reservoir No. 9, an area referred to as Expansion Area 1B, is the only area within the limits of the Kuparuk Deadarm where mining operations are currently being conducted. As of July 2003, approximately 9.5 acres of Expansion Area IB (11.0 acres total) have been

stripped of overburden to accommodate gravel extraction. Of that total, approximately 6.6 acres were stripped during the winter of 1988-1989. The overburden material was placed on the north stockpile between Reservoirs No.5 and No. 9, and on the dike between Reservoir No. 5 and the Area IB pit. During the winter of 1999-2000 approximately 2.9 acres of Area IB and 1.0 acre of Area II were stripped of overburden. The overburden material removed in 1999-2000 from both Areas IB and II was placed on approximately 3.7 acres of Area II located to the north and east of Area IB. Approximately 6.8 acres of Area IB is flooded as of July 2003.

The northern boundary of Phase IB (the boundary between Phase IB and Phase II) was modified from a straight line to a curve. The resulting irregular shoreline conforms with the guidance in paragraph No. 2 of the Site Treatment section of the Rehabilitation Plan below, which indicates that straight line contours should be avoided.

While some overburden movement and shoreline preparation has begun in Phase II as a necessary consequence of mining in Phase IB, gravel depletion in Phase IB has not yet occurred to the extent that would require closure in Phase IB and active mining in Phase II. A connecting channel between Phase IB and Phase IA (Reservoir 9) to the south can be backfilled as necessary in order to drain Phase IB of water and remove additional gravel.

The acreage of each of the expansion phases remains the same as previously planned. Expansion Area Phases II (38.4 acres), III (32.6 acres) and IV (40.3 acres) have a total area of 111.3 acres, and will be mined on an as-needed basis in the future. It is not possible to predict the extent and timing of gravel mine expansion into these areas as that expansion is based upon development and maintenance requirements that vary annually.

Expansion Areas II, III and IV consist of Class I and II wetlands. These areas are bordered on the west and north by a gravel flood control dike, on the south by the current mining Area IB, and to the east by previously mined Reservoirs 5 and 6.

As some measure of flexibility is required in mining and rehabilitation, the plans and figures are provided as guidance, and not as a precise description of final configuration. However, the outer permit boundary and size of the mine site, conformity with general guidance for irregular shorelines, creation of shallow littoral and deep reservoir areas, and the revegetation performance standards listed in Table 2 are considered compliance requirements under the permits that regulate this project.

Permits authorizing the current mining plans and expansion into Phases II, III and IV were obtained from:

• Army Corps of Engineers	No. N-840010, Kuparuk River 52 Expiring June 30, 2004
• Alaska Dept of Natural Resources	Material Sales Contract 416634 Expiring February 24, 2012
• Alaska Dept of Fish and Game	Permit FG88-III-0125, Revision 7 Expiring at field abandonment
• North Slope Borough	Development Permit March 13, 1984 No expiration date

MINING PLAN

GENERAL INFORMATION

1. Gravel mining from Area IA (Reservoir No. 9) is complete.
2. Gravel mining is currently being conducted in Area IB and will continue to be mined from this area on an as-needed basis until safely accessible gravel resources are depleted under this plan. Overburden from this area and from a 1.0 acre area on the south end of Phase II has already been stripped and placed along the dike between Reservoirs 5 and 9, and along the southeast edge of Phase II next to Reservoir 5. The result of the overburden removal and placement is the formation of shallow littoral areas and upland dikes.
3. Gravel previously stockpiled at the southern end of Reservoir No. 9 has been depleted by construction and maintenance projects. Gravel extracted from further mining of Phase IB and from future expansions may be stockpiled at various places within the originally permitted reservoir and expanded phase extraction area, such as at the south end of Reservoir 4, where permits have allowed storage of gravel stockpiles from various abandoned pad restoration projects.
4. The access road along the west side of Reservoir No. 9 will be retained for future access into the existing gravel removal area in Phase IB and into future expansion into Areas II, III and IV.
5. The exact timing of future expansions into Areas II, III and IV to the north is entirely dependent upon future gravel needs related to exploratory, development, production and maintenance requirements.
6. Due to the mine site's location in the floodplain, a detailed work plan must be presented to the ADNR Office of Habitat Management and Permitting prior to any work for approval as an amendment to the existing Fish Habitat Permit. This work plan must describe the schedule; specific activity area; gravel removal volume and methods (including explosives, if needed); vehicles

used; water extraction, discharges, trenches, dikes and other changes that could affect water levels.

SUMMER MINING PLAN

1. Areas IB (existing mining area), II, III and IV will be mined in phases, as required.
2. Summer mining within Area IB will consist of mining gravel vertically to a depth of between 6 and 8 feet.
3. Gravel will be mined below the static water elevation within Area IB if is practical to do so, and provided the ability to continue discharging accumulated gravel mine water under the provisions of the existing National Pollutant Discharge Elimination System (NPDES) permit issued by the Environmental Protection Agency (EPA). Mining below the static water table will be conducted so as to create a benched or shelved configuration. Generally, the shelf will extend laterally for a distance of approximately 100 feet to provide shallow littoral area for improved fish habitat. Beyond the shelf area, mining will continue vertically until it is determined to be no longer practical for reasons of safety, gravel quality or operational efficiency. This mining method will provide for a shallow littoral habitat area for fish rearing in the summer months and for deeper areas that can be used by fish as over-wintering habitat.
4. Side slopes of the cut will be contoured to a 1:1.5 slope as mining progresses.

WINTER MINING PLAN

1. Mining during the winter months will consist of deep mining, perhaps to a depth varying between 40 and 50 feet. A sloped access ramp will be constructed into the pit as mining progresses deeper into the pit. This deep mining will accomplish two important goals: disturbance of surface area will be reduced through greater recovery of the natural resource gravel within a specific area, and deep over-wintering fish habitat will be created to complement the shallow littoral areas being created. As indicated in Special Provisions Section 5.d.2 of the ADNR Material Sales Contract, the use of explosives in the floodplain to loosen gravel is prohibited unless prior approval is received from the ADNR Office of Habitat Management and Planning.
2. Mined material will be stockpiled within the perimeter of the expanded extraction site or will be transported offsite where it is needed for construction.

3. Side slopes in Areas IB, II III and IV during winter mining will be contoured to a 1:1.5 side slope in those areas not already contoured during the summer. Some contouring may have to be performed during the following summer season.

REHABILITATION PLAN

Overall Objective

The goal of the Kuparuk Deadarm Gravel Mine plan is to provide large, inter-connected deep water reservoirs with substantial shallow littoral areas for improved fish habitat following the closure of each mining phase, and upon final abandonment of the mine site and remaining overburden stockpiles, to establish productive, diverse, and self-sustaining plant communities on terrestrial areas. The ultimate character and quantities of shallow and deep water habitats that are provided are dependent on the need for future mining.

Site Preparation

1. Fish habitat rehabilitation of mined areas will generally occur in phases as mining in each area is completed and each phase is closed.
2. To the extent practicable irregular shorelines will be created along new cuts into the expansion areas. Straight line contours will be avoided where possible.
3. Overburden will initially be stockpiled adjacent to the most recent phase of mining. The exact timing of future expansion north into Areas II, III and IV is entirely dependent upon future gravel needs related to exploratory, development, production or maintenance requirements. However, dikes created from overburden as a result of future expansion into Areas II, III and IV will be breached at several locations to create islands for breeding and nesting birds. Some of the overburden material (organics and fine silts) will be spread along the shelf areas to provide substrate structure and nutrients for plants, insects and fish that will enter the reservoir system when it is allowed to flood.
4. The access roads leading into the gravel mine area at the southwest and southeast corners of the gravel removal areas will be retained as long as necessary to provide continued access to R Pad, and access to mining areas, overburden stockpiles for future revegetation projects, and water withdrawal sites from the reservoir system.

Rehabilitation Treatments

1. Overburden stockpiles will not be immediately revegetated since it is proposed that this overburden will be the major source for possible revegetation sites in the area and for rehabilitation and nutrient source for the Kuparuk Deadarm mine site upon abandonment.
2. Upon final abandonment, upland sites and any remaining overburden not required for rehabilitation purposes will be initially treated with fertilizer to promote natural colonization. Based on currently available knowledge, fertilization with a 20:20:10 fertilizer at about 330 kilograms/hectare will probably be applied but the composition of fertilizer and rate of fertilization may be adjusted to best suit the site conditions and targeted plant species. Use of seeding or other vegetative material is not planned in the short term. Thaw settlement is expected to result in a range of moist to wet habitats favorable for natural colonization by indigenous plants. Annual breakup and other Kuparuk River flooding events would expose artificially vegetated sites with severe disturbance if improperly placed. In addition, flooding events can promote natural colonization through transport of vegetative material from upstream locations. Depending on the rate of natural colonization, additional plant cultivation treatments may be applied once the site has stabilized (Table 1).
3. The choice of treatments will largely depend on the moisture regime in the particular area of the mine. Conditions are expected to range from moist to wet. Vegetative treatments are unlikely unless natural recruitment does not appear to establish approximately 10% total live vascular plant cover within 10 years.

Performance Standards for revegetation

The proposed performance standards for terrestrial areas reflect the primary goal of the rehabilitation efforts, which is to establish productive, diverse and stable plant communities on the site (Table 2). These standards are based on results from a number of gravel removal rehabilitation sites in the Prudhoe Bay and Kuparuk oil fields. Because performance standards are vegetation based, and because methods of assessing vegetation can affect the outcome of assessments, the methods of vegetation assessment are described in detail in a separate section. These performance standards are intended to apply if substantial portions of the site remain terrestrial. If thermokarst results in the site becoming mostly aquatic, these performance standards will have to be reconsidered.

The performance standard is ≥ 10% live vascular cover, to be attained by Year 10 following ultimate gravel mine site abandonment. The community should include ≥ 5 indigenous species with ≥ 0.2% cover each.

Monitoring for revegetation

Cover will be sampled using BP's standard walking point method (a standard, quantitative method for measuring cover) (see attached description of the monitoring method). This method will be applied to most BP revegetation projects in order to develop a long-term, multi-site database that will allow meaningful comparisons among years and sites. Quantitative vegetation sampling is scheduled for years 5, 7, and 10 of the project (Table 1).

Discretionary Research for Revegetation

In addition to the monitoring associated with performance standards, additional data will be collected at BP's discretion. This may include monitoring the development of wetland hydrology at the site; conducting elevation surveys to assess thaw settlement; measuring the depth of the organic mat to determine the rate of peat accumulation on the site; monitoring soil physical and chemical characteristics; and assessing soil microbial biomass to provide a measure of soil development. Standard methods will be developed for monitoring these parameters in BP rehabilitation projects, in order to allow comparisons among years and sites. Performance standards are not proposed for these variables, as sufficient data are not available to determine appropriate standards.

Remedial Action for Revegetation

The results of interim monitoring (years 5 and 7) will aid in predicting whether attainment of the performance standards by year 10 is likely. This will allow an early response if the plant communities in the rehabilitated areas do not develop as expected. If performance standards are not met by year 10, the rehabilitation plan will be revised based on discussions with the U. S. Army Corps of Engineers and other resource management agencies.

Progress Reports on Revegetation

Progress reports describing treatments applied and presenting interim monitoring data will be submitted to federal (Army Corps of Engineers, Fish and Wildlife Service, and Environmental Protection Agency) and state (Department of Natural Resources, Department of Environmental Conservation, Department of Fish and Game) resource agencies by December 15 of each year that work is conducted at the site. A final report, including quantitative data on vegetation, soils, and

surface stability, and evaluating whether performance standards have been met, will be submitted by December 15 of year 10.

References

Bishop, S. C., J. G. Kidd, T. C. Cater, L. J. Rossow, and M. T. Jorgenson. 1999. Land rehabilitation studies in the Kuparuk Oilfield, Alaska, 1998. Thirteenth annual report prepared for ARCO Alaska, Inc. and Kuukpik Unit Owners, Anchorage, AK by ABR Inc., Fairbanks, AK.

Bishop, S. C., J. G. Kidd, T. C. Cater, K. N. Max, and P. E. Seiser. 2001. Land rehabilitation studies in the Kuparuk Oilfield, Alaska, 2000. Fifteenth annual report prepared for ARCO Alaska, Inc. and Kuukpik Unit Owners, Anchorage, AK by ABR Inc., Fairbanks, AK.

Jorgenson, M. T., J. E. Roth, E. R. Pullman, R. M. Burgess, M. K. Raynolds, A. A. Stickney, M. D. Smith, and T. M Zimmer. 1997. An ecological land survey for the Colville River Delta, Alaska, 1996. Final report prepared for ARCO Alaska, Inc. and Kuukpik Unit Owners, Anchorage, AK by ABR Inc., Fairbanks, AK.

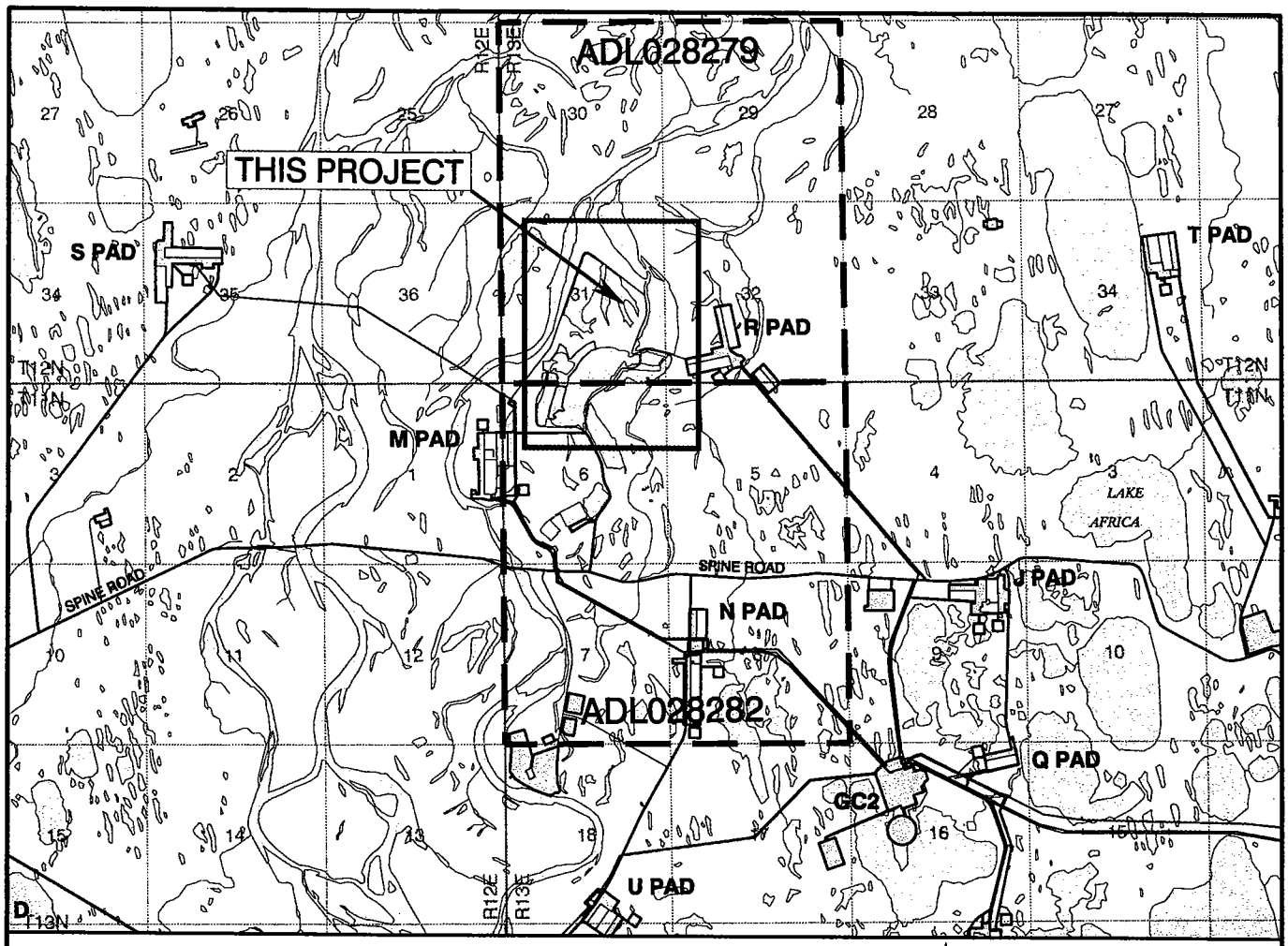
Kidd, J. G., M. T. Jorgenson, T. C. Cater, and L. L. Jacobs. 1995. Ecological restoration of the North Prudhoe Bay State No. 2 Exploratory Well Site, Prudhoe Bay Oilfield, Alaska. Second annual report prepared for ARCO Alaska, Inc. and Kuukpik Unit Owners, Anchorage, AK by ABR Inc., Fairbanks, AK.

Table 1. Schedule for application of site preparation and rehabilitation treatments, site monitoring and reporting, Kuparuk Deadarm Gravel Mine, Prudhoe Bay Oilfield, Alaska. This table summarizes all work to be performed at the site, including discretionary research. See Table 2 for information related to performance standards.

Year	Treatment and Monitoring	Reporting
Year 1 (after final closure)	Monitoring of thermokarsting and water levels, stability of soil configurations.	Progress report describing fieldwork accomplished.
Year 2	Apply fertilizer to terrestrial areas to promote natural colonization.	Progress report describing fieldwork accomplished.
Year 3	Preliminary assessment of the progress of natural colonization	Progress report on preliminary vegetation assessment and treatments applied.
Year 4	Apply additional plant cultivation treatments and/or 2nd fertilizer application to gravel removal area, if needed based on year 3 data.	Progress report describing fieldwork accomplished.
Year 6	Quantitative vegetation monitoring.	Progress report including quantitative vegetation data.
Year 10	Quantitative vegetation monitoring, elevation and thaw depth survey.	Final report including quantitative vegetation data, determination of whether performance standards have been met.

Table 2. Goals, objectives, performance standards and monitoring methods for rehabilitation of Kuparuk Deadarm Gravel Mine, Prudhoe Bay Oilfield, Alaska. If the performance standards are not met, new performance standards will be negotiated and remedial work will be undertaken.

Goal for revegetation	Establish productive, diverse and self-sustaining wetland and upland plant communities on the site
Objective(s)	Establish a healthy plant community that includes indigenous wetland species similar to those on the adjacent, undisturbed tundra and river channel areas.
Performance Standards	Year 10— ≥10% live vascular cover excluding seeded grasses, and ≥ 5 indigenous species with ≥ 0.2% cover each.
Monitoring Method	Vegetation cover: walking point sampling, ≥ 500 points widely spaced over revegetation area



This map is based on U.S.G.S. quad Beechey Point (B-4)
and on the Unit Operator's Facility Maps.

PROJECT LOCATION:

KUPARUK DEADARM MINE SITE

LAT. = 70° 20' 36.20"
LONG. = -148° 56' 38.40"

X = 630,107.33 FEET
Y = 5,976,301.25 FEET

ALASKA STATE PLANE ZONE 4, NAD 27

SEC. 31, 32 T12N, R13E ADL028279
SECS. 5, 6 T11N, R13E ADL028282

POA-1984-010-O
Kuparuk River

DATUM: MEAN SEA LEVEL

PURPOSE: MINING AND REHABILITATION PLAN

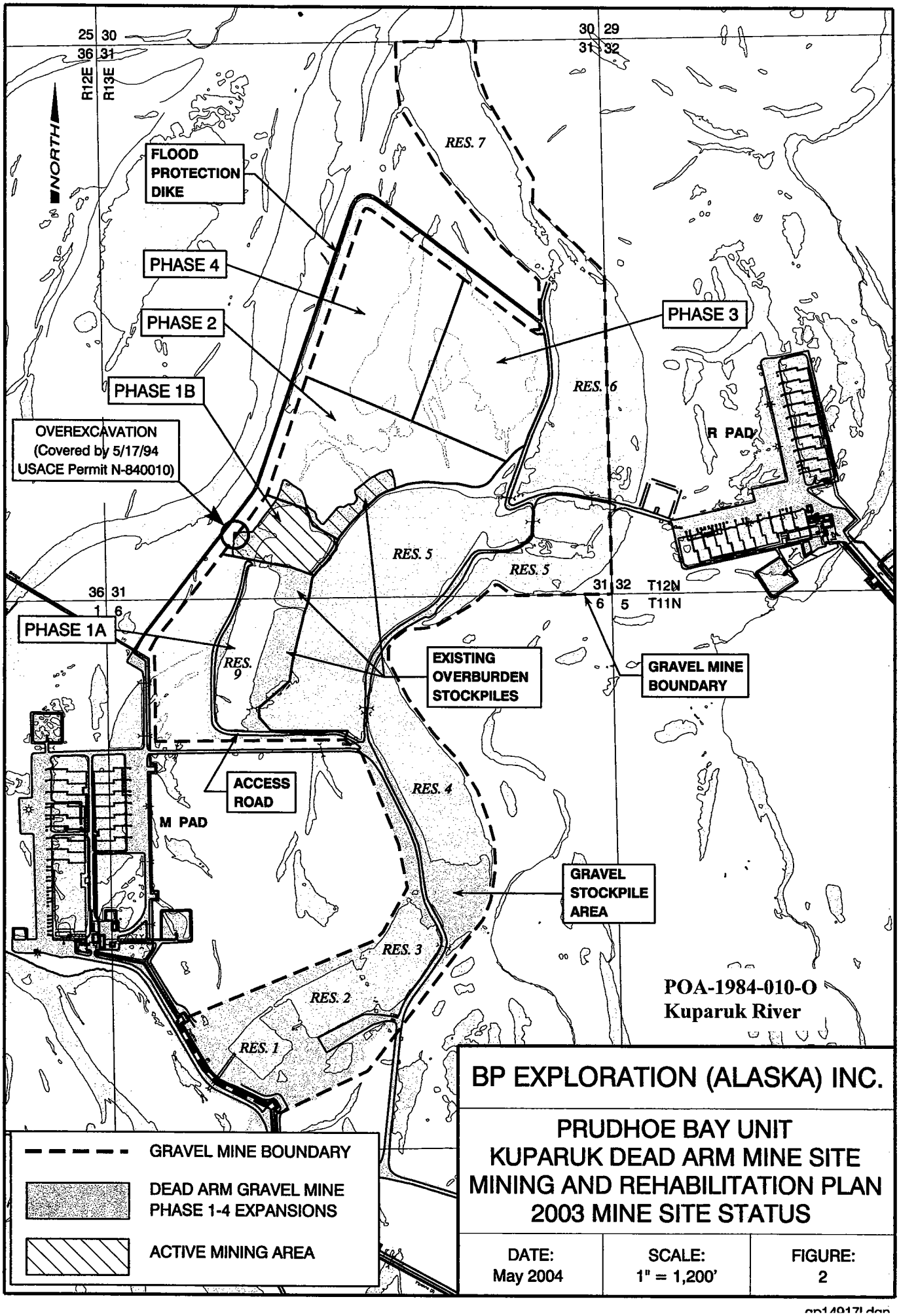
ADJACENT PROPERTY OWNER:
STATE OF ALASKA

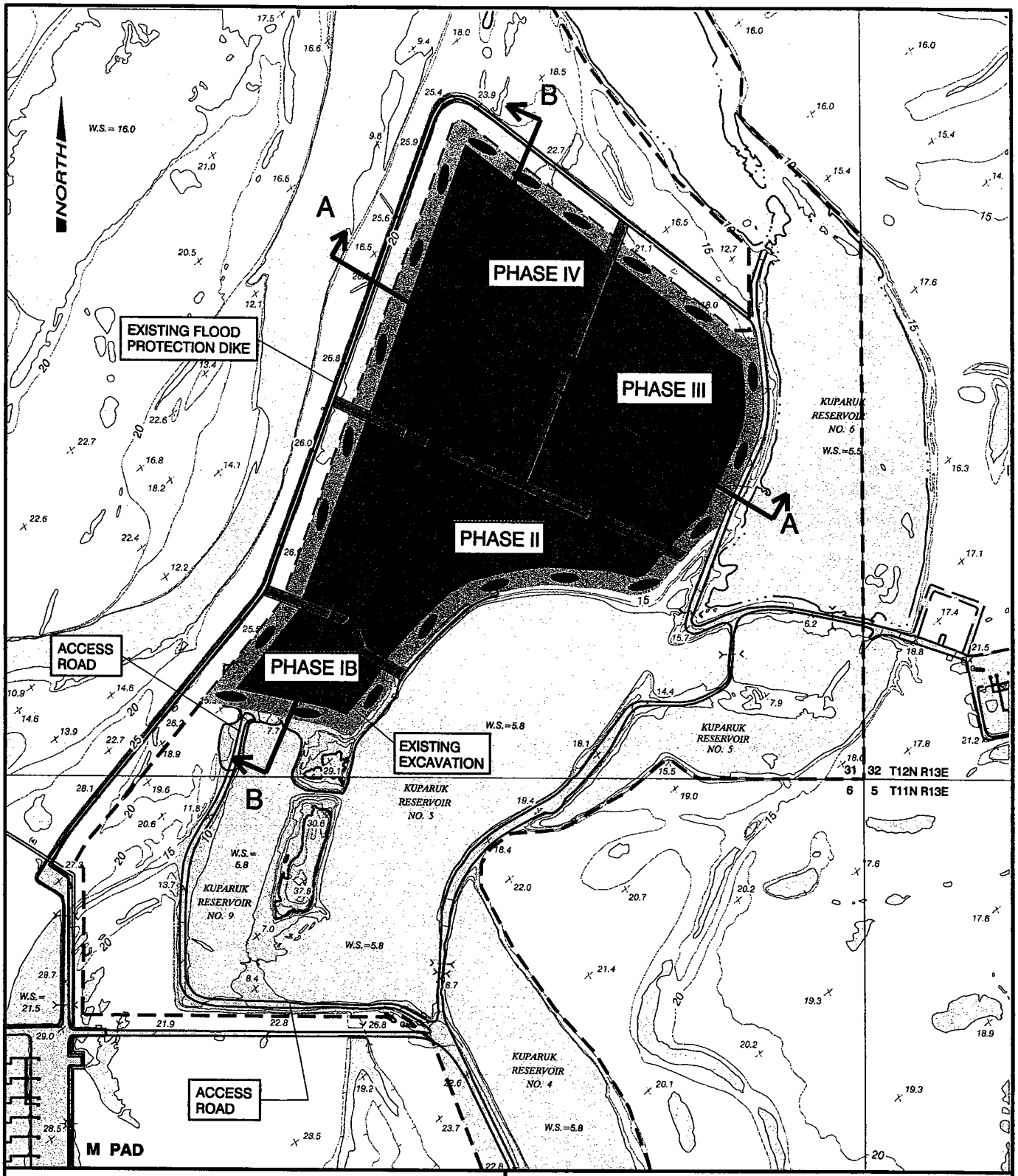
BP EXPLORATION (ALASKA) INC.

PRUDHOE BAY UNIT
KUPARUK DEADARM MINE SITE
MINING AND REHABILITATION PLAN
VICINITY MAP

DATE:	SCALE:	FIGURE:
May 2004	1" = 1 Mile	1

gp14917v.dgn


25 30
36 31
R12E
R13E
NORTH
30 29
31 32
FLOOD PROTECTION DIKE
RES. 7
PHASE 4
PHASE 2
PHASE 3
PHASE 1B
RES. 6
OVEREXCAVATION
(Covered by 5/17/94
USACE Permit N-840010)
R PAD
RES. 5
RES. 5
36 31
1 6
31 32 T12N
6 5 T11N
PHASE 1A
RES. 9
EXISTING OVERBURDEN STOCKPILES
GRAVEL MINE BOUNDARY
ACCESS ROAD
RES. 4
M PAD
GRAVEL STOCKPILE AREA
RES. 3
RES. 2
RES. 1
POA-1984-010-O
Kuparuk River
GRAVEL MINE BOUNDARY
DEAD ARM GRAVEL MINE PHASE 1-4 EXPANSIONS
ACTIVE MINING AREA
BP EXPLORATION (ALASKA) INC.
PRUDHOE BAY UNIT
KUPARUK DEAD ARM MINE SITE
MINING AND REHABILITATION PLAN
2003 MINE SITE STATUS
DATE: May 2004
SCALE: 1" = 1,200'
FIGURE: 2



LEGEND

- 40' to 60' depth inside shelf
- 100' wide - shallow 6' to 8' depth shelf
- Future flood protection dike
- Artificial islands
- Mine Boundary

POA-1984-010-O
Kuparuk River

BP EXPLORATION (ALASKA) INC.

PRUDHOE BAY UNIT
KUPARUK DEADARM MINE SITE
MINING AND REHABILITATION PLAN
LOCATION MAP

DATE:	SCALE:	FIGURE:
May 2004	1" = 800'	3

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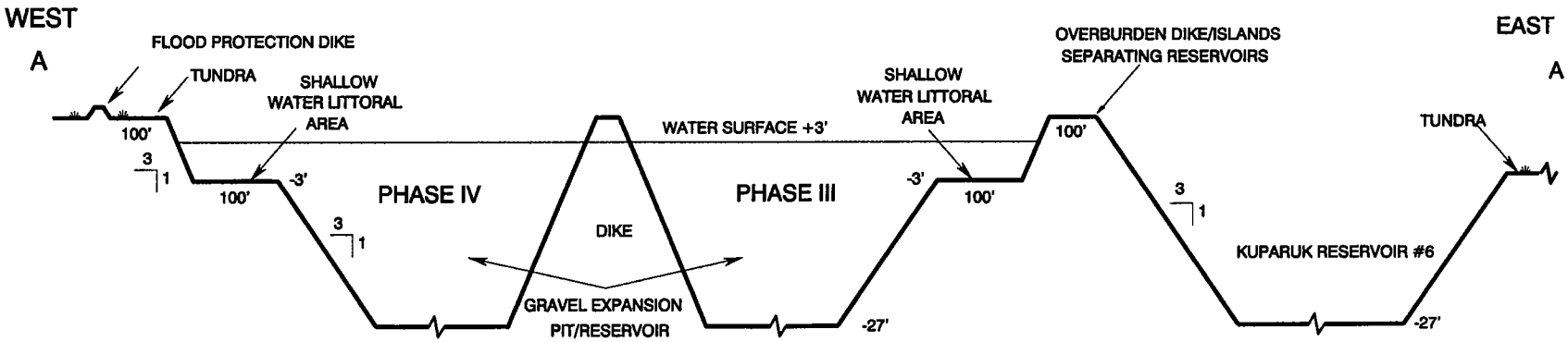
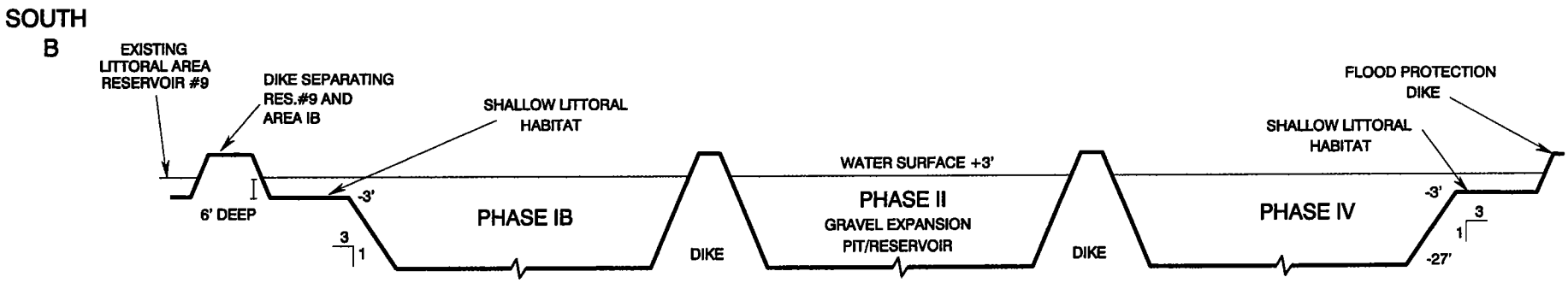
EXTENDED SHALLOW/DEEP MINING METHOD



WEST-EAST CROSS SECTION



SOUTH-NORTH CROSS SECTION

ALL DIMENSIONS ARE APPROXIMATE

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PRUDHOE BAY UNIT
KUPARUK DEADARM MINE SITE
MINING AND REHABILITATION PLAN
CROSS SECTIONS

DATE:	SCALE:	FIGURE:
May 2004	NOT TO SCALE	4

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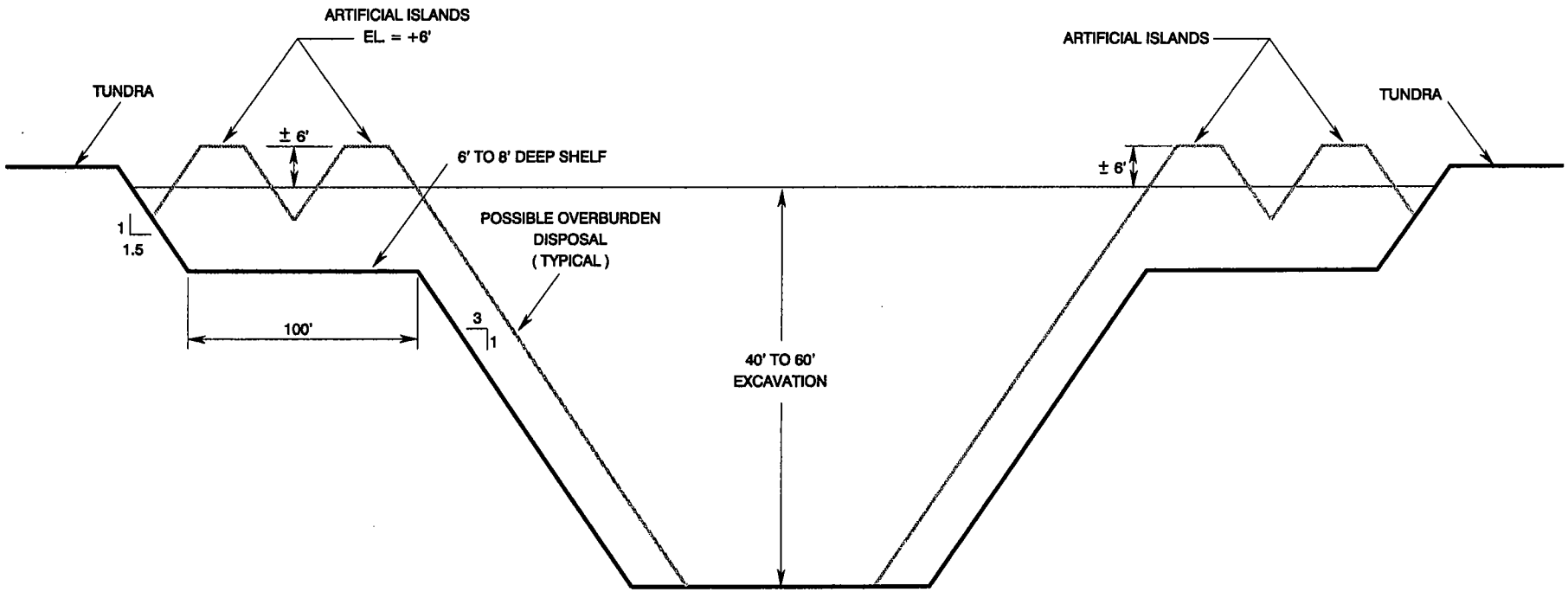

ALL DIMENSIONS ARE APPROXIMATE

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DATE:	SCALE:	FIGURE:
May 2004	NOT TO SCALE	5

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